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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,185	10/19/2001	Chang-Hoi Koo	678-759	5697

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EXAMINER	
DAVIS, CYNTHIA L	
ART UNIT	**PAPER NUMBER**
2665	

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/007,185	KOO ET AL.	
	Examiner	Art Unit	
	Cynthia L. Davis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/17/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/2/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 1 19(a)-(d), which papers have been placed of record in the file.

Response to Arguments

2. Applicant's arguments with respect to claims 1 and 15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 5, and 7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg and Hluchyj.

Regarding claim 1, a protocol implementing device in a mobile communication system, comprising: an RLP (Radio Link Protocol) layer for receiving data with different qualities of service (QoSs) and dividing the data into datagrams according to the QoSs is disclosed in Ahmadvand, column 5, lines 6-10. A MUX (Multiplexing) layer for multiplexing the datagrams received from the RLP layer and outputting the multiplexed data in a transport unit (TU) is disclosed in column 5, lines 11-12. A QCCH (Quality Control Channel) for receiving the multiplexed TU data and outputting TU blocks with the QoSs by puncturing and repeating information added according to the QoSs for the multiplexed TU is missing from Ahmadvand. However, Freiberg discloses in column 1, lines 36-40, puncturing and repeating to achieve a QoS. It would have been obvious to

one skilled in the ad at the time of the invention to puncture and repeat the TU's of Ahmadvand. The motivation would be to adapt the symbol data rate to the physical channel data rate (Freiberg, column 1, lines 30-32). Comparing the length of the datagrams with the length of a transport unit and multiplexing the datagrams into transport units based on that determination is missing from Ahmadvand. However, Hluchyj discloses in column 3, line 55-column 4, line 11, a system that checks the length of packets to ensure that the packets in a system do not exceed a maximum packet length, and encapsulates the packets according to the maximum length. It would have been obvious to one skilled in the art at the time of the invention to use the length of the datagrams to encapsulate the datagrams into transport units of a certain size, as is done in Hluchyj, in the system of Ahmadvand. The motivation would be to ensure that portability of packet information is ensured across the network (Hluchyj, column 3, lines 57-60).

Regarding claim 15, a protocol implementing method in a mobile communication system. Receiving data with different qualities of service (QoSs) and dividing the data into datagrams according to the QoSs in an RLP (Radio Link Protocol) layer is disclosed in Ahmadvand, column 5, lines 6-10. Multiplexing the datagrams received from the RLP layer and outputting the multiplexed data in a transport unit (TU) in a MUX (multiplexing) layer is disclosed in column 5, lines 11-12. Receiving the multiplexed TU data and outputting TU blocks with the QoSs by puncturing and repeating information added according to the QoSs for the multiplexed TU in a QCCH (Quality Control Channel) is missing from Ahmadvand. However, Freiberg discloses in column 1, lines 36-40,

puncturing and repeating to achieve a QoS. It would have been obvious to one skilled in the art at the time of the invention to puncture and repeat the TU's of Ahmadvand. The motivation would be to adapt the symbol data rate to the physical channel data rate (Freiberg, column 1, lines 30-32). Comparing the length of the datagrams with the length of a transport unit and multiplexing the datagrams into transport units based on that determination is missing from Ahmadvand. However, Hluchyj discloses in column 3, line 55-column 4, line 11, a system that checks the length of packets to ensure that the packets in a system do not exceed a maximum packet length, and encapsulates the packets according to the maximum length. It would have been obvious to one skilled in the art at the time of the invention to use the length of the datagrams to encapsulate the datagrams into transport units of a certain size, as is done in Hluchyj, in the system of Ahmadvand. The motivation would be to ensure that portability of packet information is ensured across the network (Hluchyj, column 3, lines 57-60).

Regarding claim 5, the RLP layer transmits the datagrams of a variable size to the MUX layer through the logical channels is disclosed in column 6, lines 62-65.

Regarding claim 7, the RLP layer adds a priority header to each datagram transmitted on a logical channel according to the QOS of each datagram is disclosed in column 7, lines 4-6 of Ahmadvand.

Regarding claim 8, if two or more datagrams require the same QOS and one QCCH can accommodate two or more datagrams, the MUX layer multiplexes the datagrams into the one QCCH is disclosed in Ahmadvand, column 7, lines 27-30 (multiplexing is done according to QoS).

Regarding claim 9, if the QCCH transmits two or more datagrams, the MUX layer adds multiplexing header (MH) information to each datagram and transmits the MH-added datagrams on the QCCH is disclosed in column 7, lines 4-12 (disclosing adding information to the packets that is necessary for the multiplexing/demultiplexing process). Regarding claim 10, the RLP layer generates at least one RLP instance according to the types of the data and the number of logical channels and outputs the datagrams on the logical channels is disclosed in column 3, lines 7-10 of Ahmadvand.

Regarding claim 11, the RLP instance outputs the datagrams on one logical channel is disclosed in figure 3, elements 70 (the RLC instances) and 15 (the logical channels) of Ahmadvand (each RLC has its own logical channel).

Regarding claim 12, the RLP instance adds an RLP id (Radio Link Protocol Identification) and sequence number to each of the datagrams is disclosed in column 5, line 59 (the datagrams are RLP frames, which would contain RLP identifiers) and column 6, lines 66-67 (sequence numbers).

Regarding claim 13, the RLP instance generates datagrams according to source data and outputs the datagrams on at least two logical channels is disclosed in figure 3, elements 70 (the QOS planes are RLP instances) and 15 (the logical channels) of Ahmadvand (each RLP has two logical channels).

Regarding claim 14, the RLP instance adds a sequence number to each datagram transmitted on the logical channels and the sequence number is sequentially assigned according to the priority levels of the logical channels which exist at the same time point is disclosed in column 6, lines 66-67.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg and Hluchyj in further view of Tiedmann, Jr. and Murai. Encoding is disclosed in Ahmadvand, column 4, line 56. Processing according to QoS is disclosed in Ahmadvand, column 3, lines 9-10. Redundancy selection and quality matching on the TU blocks is missing from Ahmadvand. However, redundancy selection is disclosed in Tiedmann, Jr., column 6, lines 30-32 (the bits to be added must be selected), and quality matching in Murai, column 4, line 49. It would have been obvious to one skilled in the art at the time of the invention to perform redundancy selection and quality matching on the TUs. The motivation would be to use known encoding techniques to ensure a certain level of QoS.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg, Hluchyj, Tiedmann, Jr., and Murai, in further view of Lou.

Regarding claim 3, an encoder for encoding the TU blocks is disclosed in Ahmadvand, column 4, line 56. Processing according to QOS is disclosed in Ahmadvand, column 3, lines 9-10. A redundancy selector for providing identical or different redundancy to the coded data depending on whether initial transmission or retransmission is performed is missing from Ahmadvand. However, Lou discloses in using incremental redundancy for retransmissions, so as to ensure eventual proper receipt. It would have been obvious to one skilled in the ad to vary the redundancy for retransmissions. The motivation would be to use an old technique in redundancy coding. A quality matcher (QM) for performing quality matching on the redundancy

added data is missing from Ahmadvand. This is disclosed in Murai, column 4, line 49. It would have been obvious to one skilled in the art at the time of the invention to perform quality matching on the TUs. The motivation would be to use known encoding techniques to ensure a certain level of QoS.

Regarding claim 4, the encoder is a turbo encoder is missing from Ahmadvand. However, Tiedmann, Jr. discloses a turbo encoder in column 5, line 66-column 7, line 2. It would have been obvious to one skilled in the art at the time of the invention to use turbo encoding. The motivation would be to use a technique well known in the art to encode the data.

6. Claims 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg and Hluchyj in further view of Gibbs. The RLP layer divides the data into the datagrams depending on the size of the logical channels according to source data rates is missing from Ahmadvand. However Gibbs discloses in column 6, lines 1-7, the size of packets being constrained by logical channel and physical channel data rate. It would have been obvious to one skilled in the ad at the time of the invention to divide the datagrams of Ahmadvand depending on logical channel size and data rates. The motivation would be to match the packet size to available resources, ensuring higher quality transmissions.

7. Claims 16 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg and Hluchyj in further view of Murai.

Regarding claim 16, encoding the TU data is disclosed in Ahmadvand, column 4, line 56. Processing according to QOS is disclosed in Ahmadvand, column 3, lines 9-10.

Providing redundancy to the coded data according to a data rate is missing from Ahmadvand. However, Frieberg discloses in column 1, lines 30-32, repeating bits (i.e., adding redundancy) according to a data rate. It would have been obvious to one skilled in the art at the time of the invention to provide redundancy according to the data rate. The motivation would be to adapt the symbol data rate to the physical channel data rate. Performing quality matching on the redundant data is missing from Ahmadvand. This is disclosed in Murai, column 4, line 49. It would have been obvious to one skilled in the art at the time of the invention to perform quality matching on the TUs. The motivation would be to use known encoding techniques to ensure a certain level of QoS.

Regarding claim 19, constructing as many logical channels as service classes and generating as many RLP instances as required, if the transmission packet has at least two service classes is disclosed in figure 3, element 70 (the various QOS planes). Checking whether datagrams processed by the RLP instances can be assembled if the datagrams are shorter than a TU length is disclosed in column 7, lines 13-20 (disclosing handling of small amounts of data). Adding multiplexing headers (MHs) to the datagrams if the assemble is possible is disclosed in column 7, lines 4-12 (disclosing adding information to the packets that is necessary for the multiplexing/demultiplexing process). Constructing as many QCCHS as required is disclosed in column 7, line 23 (there are as many MAC instances to process the datagrams as necessary). Transmitting the TU data on the QCCHS according to the priority levels of the TU data is disclosed in column 7, lines 29-30 (they are prioritized based on QoS). Performing

quality matching on the TU data is missing from Ahmadvand. This is disclosed in Murai, column 4, line 49. It would have been obvious to one skilled in the art at the time of the invention to perform quality matching on the TUs. The motivation would be to use known encoding techniques to ensure a certain level of QoS.

Regarding claim 20, constructing QCCHS after step (5) and returning to step (4), if the datagrams processed by the RLP instances are longer than the TU length or datagram assembly is impossible is disclosed in column 6, lines 58-60 (the datagrams are chopped up, so that they are never longer than the TU length).

Regarding claim 21, encoding the TU data is disclosed in Ahmadvand, column 4, line 56. Processing according to QOS is disclosed in Ahmadvand, column 3, lines 9-10. Providing redundancy to the coded data according to a data rate is missing from Ahmadvand. However, Frieberg discloses in column 1, lines 30-32, repeating bits (i.e., adding redundancy) according to a data rate. It would have been obvious to one skilled in the ad at the time of the invention to provide redundancy according to the data rate. The motivation would be to adapt the symbol data rate to the physical channel data rate. Performing quality matching on the redundant data is missing from Ahmadvand. This is disclosed in Murai, column 4, line 49. It would have been obvious to one skilled in the ad at the time of the invention to perform quality matching on the TUs. The motivation would be to use known encoding techniques to ensure a certain level of QoS.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg, Hluchyj, and Murai, in fudher view of Lou. The

redundancy is provided differently for initial transmission and retransmission is missing from Ahmadvand. However, Lou discloses in using incremental redundancy for retransmissions, so as to ensure eventual proper receipt. It would have been obvious to one skilled in the art to vary the redundancy for retransmissions. The motivation would be to use an old technique in redundancy coding.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg, Hluchyj, Lou, and Murai, in fudher view of Tiedmann, Jr. Turbo encoding is used in the encoding step is missing from Ahmadvand. However, Tiedmann, Jr. discloses a turbo encoder in column 5, lines 66-column 7, lines 2. It would have been obvious to one skilled in the art at the time of the invention to use turbo encoding. The motivation would be to use a technique well known in the art to encode the data.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg, Hluchyj, and Murai in further view of Lou. The redundancy is provided differently for initial transmission and retransmission is missing from Ahmadvand. However, Lou discloses in using incremental redundancy for retransmissions, so as to ensure eventual proper receipt. It would have been obvious to one skilled in the ad to vary the redundancy for retransmissions. The motivation would be to use an old technique in redundancy coding.

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand in view of Frieberg, Hluchyj, and Murai in fudher view of Tiedmann, Jr. Turbo encoding is used in the encoding step is missing from Ahmadvand. However,

Tiedmann, Jr. discloses a turbo encoder in column 5, lines 66-column 7, lines 2. It would have been obvious to one skilled in the art at the time of the invention to use turbo encoding. The motivation would be to use a technique well known in the ad to encode the data.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L. Davis whose telephone number is (571) 272-3117. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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